

Chapter 1

LLNL ES&H Policies and Responsibilities

November 1996

Approved by the ES&H Working Group

_____ date _____
Robert Kuckuck
Deputy Director for Operations

LLNL ES&H Policies and Responsibilities*

Contents

1.1	Introduction.....	1-1
1.2	Laboratory Environmental, Safety, and Health Policy.....	1-1
1.2.1	Laboratory ES&H Objectives	1-1
1.2.2	Other Laboratory ES&H-Related Policies	1-2
1.3	ES&H Responsibilities.....	1-2
1.3.1	Employees	1-2
1.3.2	Managers	1-4
1.3.3	Managers with Specific ES&H Responsibilities.....	1-5
1.3.4	Laboratory Director.....	1-8
1.3.5	Organizations with Specific ES&H Responsibilities.....	1-9
1.3.6	ES&H Technical Support Organizations.....	1-10
1.4	Non-LLNL Personnel.....	1-15
1.4.1	Work Requirements.....	1-15
1.4.2	Supplemental Labor Employees.....	1-15
1.4.3	Contractors.....	1-15
1.5	Construction Subcontractors.....	1-16
1.6	Restrictions for Underage Employees.....	1-16
1.7	Performance Responsibilities to External Organizations	1-17
1.7.1	Contractual ES&H Requirements.....	1-17
1.7.2	Oversight by External Organizations.....	1-17
1.8	Integrated Safety Management.....	1-18
1.9	Stopping High-Risk Operations	1-18

* Major revision

LLNL ES&H Policies and Responsibilities

1.1 Introduction

This chapter contains environmental, safety, and health (ES&H) policies, and the responsibilities of employees and all levels of management within the Laboratory's matrix system. It also contains the responsibilities and functions of ES&H support organizations and administrative groups and describes their interactions with the University of California (UC), the Department of Energy (DOE), and other regulatory agencies.

1.2 Laboratory Environmental, Safety, and Health Policy

It is the Laboratory's ES&H policy to perform work in a manner that protects the health and safety of employees and the public, preserves the quality of the environment, and prevents property damage. The environment, safety, and health are to be priority considerations in the planning and execution of all work activities at the Laboratory. Furthermore, it is the policy of LLNL to comply with applicable ES&H laws, regulations, and requirements.

Other ES&H-related policies are listed in Section 1.2.2.

1.2.1 Laboratory ES&H Objectives

To implement ES&H policies, LLNL has established the following objectives:

- Define ES&H responsibilities for all employees.
- Provide safe workplaces.
- Conduct work in a safe manner.
- Develop and maintain manuals to implement ES&H regulations and DOE directives.
- Interact with the general public with openness and integrity.
- Maintain effective internal oversight and cooperate with external oversight agencies.
- Hold managers and staff accountable for the implementation of ES&H policies.

The word "safe" as used in these objectives means environmentally benign and healthy.

1.2.2 Other Laboratory ES&H-Related Policies

The ES&H aspects of all work conducted at LLNL are governed by a group of ES&H policies (listed below) that supplements the Laboratory's primary ES&H policy. These policies are signed by the Director or the Deputy Director for Operations (DDO) and are available on the Laboratory's Intranet Web Site.

- Waste Minimization.
- Plant, Facility, and Equipment Maintenance.
- Decontamination and Decommissioning of Facilities.
- Training Policy for ES&H.
- Quality Policy.
- LLNL Metrology/Calibration.
- Onsite Traffic Safety Policy.
- Public Participation in ES&H Issues.
- Triennial Review of the ES&H Independent Review System.

1.3 ES&H Responsibilities

It is the responsibility of all Laboratory employees to perform work safely and in accordance with the Laboratory's ES&H policies. Employees are accountable for their own safety and the safety of others who could be impacted by their activities. Certain organizations and managers have specific responsibilities for carrying out specific ES&H-related activities. Employees who perform management functions have increased ES&H obligations. Managers may delegate ES&H authority to others in their line organizations; however, the accountability for ES&H performance and assurance is not transferable.

The sections that follow describe specific ES&H responsibilities for all Laboratory employees. Figure 1-1 shows the ES&H management structure.

1.3.1 Employees

All employees are responsible for

- Knowing and understanding the ES&H requirements of their assignments and the potential hazards in the work area.
- Participating in all required training, personnel assurance (see Supplements 1.14 and 1.15), and health monitoring programs.
- Performing work assignments in full compliance with applicable ES&H requirements in Laboratory manuals, guidelines, and established safety procedures.
- Immediately correcting or informing the responsible manager of any ES&H-related problems.

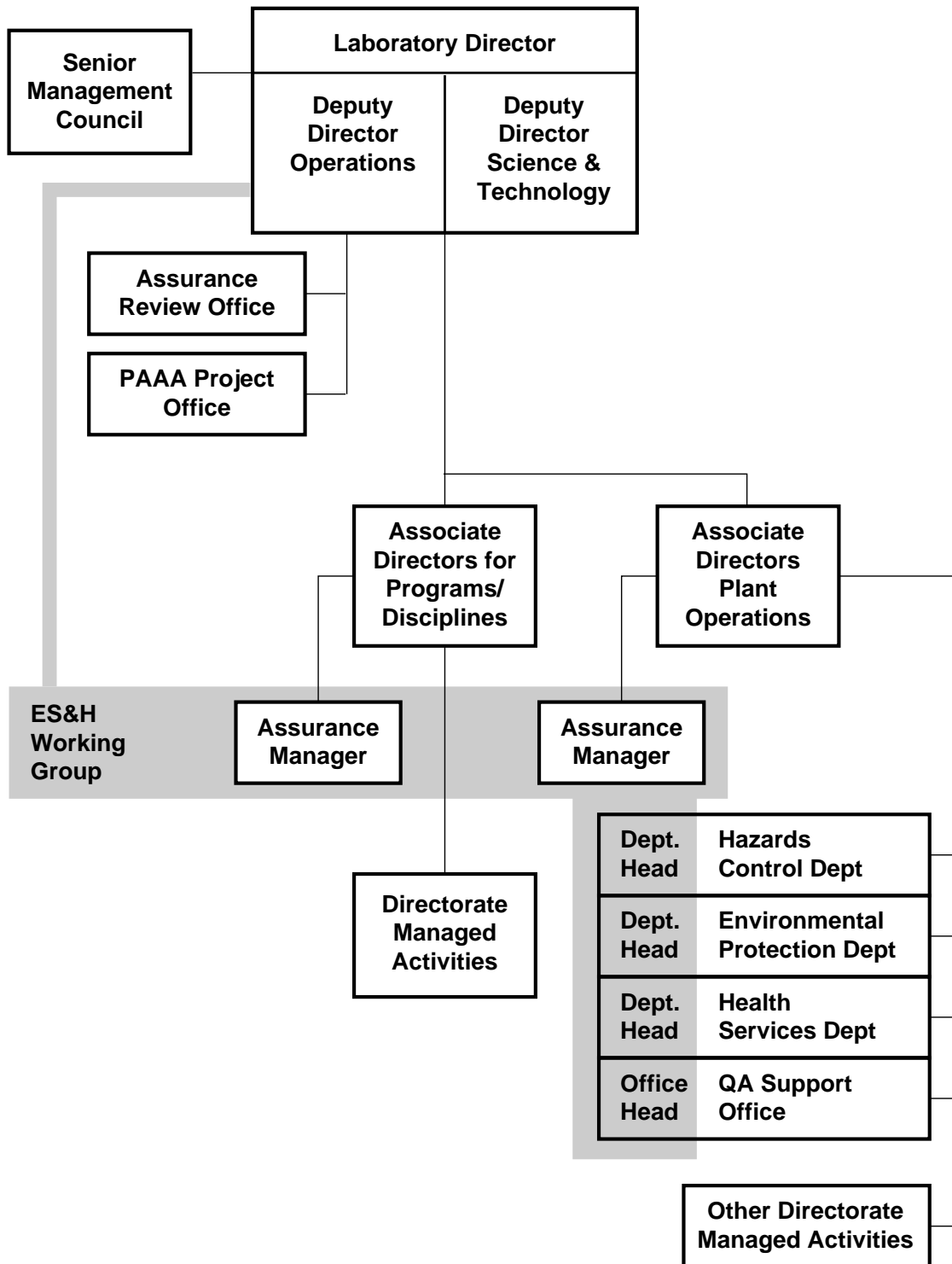


Figure 1-1 ES&H Management Structure.

- Warning fellow employees and visitors of hazards and defective equipment.
- Knowing emergency plans and procedures for the work area.
- Requesting that work be stopped if they observe others performing an operation (or are in a situation) that is perceived to be imminently dangerous to health, safety, or the environment.
- Reporting all work-related injuries and illnesses to Health Services.

To ensure compliance with these requirements, employees should consult their managers for guidance as necessary.

1.3.2 Managers

As it relates to ES&H, the term “manager” means anyone (e.g., division leader, group or project leader, principal investigator, or supervisor) who directs or supervises Laboratory facilities, activities, or personnel.

Managers are responsible for

- Knowing the Laboratory’s ES&H policies and for making sure applicable ES&H laws and regulations are appropriately implemented within their areas of responsibility.
- Understanding applicable ES&H responsibilities as well as those of other organizations relied upon for guidance.
- Informing employees of all health and safety hazards and ES&H requirements in workplaces they manage, and providing training on how to work with identified hazards. Consultation with Health Services or Hazards Control may be needed for disabled or previously injured employees.
- Performing an ES&H evaluation when planning a new activity or changing an existing one (see Chapter 2 for details).
- Making sure employees
 - Have the necessary hardware (equipment, materials, and facilities) to carry out specified tasks.
 - Are trained, qualified, and fit for duty.
 - Report all work-related injuries and illnesses to Health Services.
- Ensuring
 - Employees’ job descriptions reflect the work requirements.
 - Training and certification records are maintained for all employees.
 - Safety procedures, work procedures, maintenance plans, material safety data sheets (MSDSs), and permits are prepared or obtained prior to starting an activity.
 - Self-help plans and emergency response procedures are prepared for operations and facilities assigned.

- Verifying that visitors, guests, students, and vendors either have the training necessary for entering certain Laboratory areas or are escorted by an individual who has the required training.
- Providing an adequate level of supervision to visitors, guests, students, and vendors who perform ES&H-related activities.
- Implementing a self-assessment program in accordance with their directorate's plans and procedures, and seeing that the necessary corrective actions are carried out.
- Notifying the cognizant senior manager of occurrences and incidents in accordance with Laboratory notification and reporting requirements, and taking appropriate action to correct the situation and prevent a recurrence.

Support resources from ES&H and quality assurance (QA) organizations (Environmental Protection Department, Hazards Control, Health Services, and the Quality Assurance Support Office) are available to managers.

1.3.3 Managers with Specific ES&H Responsibilities

Facility Managers. Facility managers are appointed by the appropriate Facility AD. They are responsible for

- Ensuring that applicable elements of Conduct of Operations are implemented in their facilities.
- Reviewing and approving operational safety procedures (OSPs) and facility safety procedures (FSPs) or concurring with the approval of these documents.
- Implementing facility-related requirements specified in OSPs, FSPs, and Laboratory ES&H manuals.
- Ensuring that employees within the facility comply with facility-specific training requirements.
- Implementing the self-assessment plan for the facility and seeing that the necessary corrective actions are taken.
- Reviewing ES&H Integration Worksheets (see sample in Chapter 2) for compatibility with the requirements in OSPs, FSPs, and Technical Safety Requirements.
- Evaluating proposed operational or activity changes against the facility's existing ES&H documentation (i.e., the authorization basis).
- Maintaining close interaction with the ES&H team and facility maintenance personnel.
- Communicating facility-related ES&H requirements to building residents and visitors, as appropriate.

Assurance Managers. Each AD appoints an assurance manager who is responsible directly to the AD for providing oversight of the directorate's ES&H activities. Assurance managers are also responsible for

- Addressing and resolving institutional and cross-directorate ES&H issues through participation in the ES&H Working Group.
- Assisting in the development of the directorate's ES&H plans and procedures for approval by the AD.
- Providing oversight of the directorate's line organizations, facilities, and activities to assure proper implementation of the ES&H program within the directorate.
- Performing independent assessment of the ES&H program within the directorate.

Assurance managers are the primary directorate contact with the Assurance Review Office (ARO) and for external ES&H audits and assessments.

Associate Directors. The Laboratory Director has delegated to ADs direct responsibility for conducting the Laboratory's programmatic work and primary responsibility for implementing the Laboratory's ES&H policies in the performance of that work. In carrying out these responsibilities, ADs can simultaneously function in one or more of the following roles:

- Program AD—Responsible for carrying out program operations.
- Facility AD—Responsible for operating and maintaining the assigned facilities (buildings or areas).
- Payroll AD—Responsible for assigning employees on his/her payroll accounts to program operations or facility operations and maintenance.

Associate Directors shall be aware of legal, regulatory, and contractual ES&H requirements applicable to their operations and facilities. They also shall ensure that a self-assessment evaluation of the directorate's operations and facilities is conducted to verify that ES&H programs are effectively implemented, and that ES&H is a part of each employee's annual performance appraisal.

Associate Directors may delegate ES&H authority to managers in their line organizations. However, they remain accountable to the Laboratory Director for making sure that ES&H activities are performed in accordance with LLNL requirements. ES&H-related authority includes

- Approving budgets and expenditures for programmatic or functional activities, including funding of ES&H-related activities.
- Approving directorate-level ES&H plans and procedures, occurrence reports, ES&H self-assessment plans and reports, and other ES&H documents.

- Appointing an assurance manager to oversee ES&H activities within the directorate.
- Coordinating responses to ES&H-related incidents.
- Generating notifications and reports required by Laboratory ES&H policies.

Program AD. Program ADs shall make sure that Laboratory ES&H policies are integrated into the program's plans and activities, and that these activities comply with applicable ES&H requirements. They shall also assure that employees who carry out Laboratory work have the proper job-related training, that training requirements are documented, and that appropriate safety procedures are prepared and rigorously followed.

The Program AD will notify the Payroll AD of program-specific training requirements.

Facility AD. The Facility AD is responsible for ensuring that

- Operations within the facility are conducted safely and comply with applicable Laboratory ES&H requirements.
- Required ES&H facility documentation is prepared and maintained, facility-specific training requirements are identified and documented, and that notice of these requirements is given to managers who use or provide service to the facility.
- All personnel using or working in the facility have the facility-required training and that it is current.

The Facility AD will notify the Payroll AD of facility-specific training requirements.

Payroll AD. The Payroll AD shall ensure that personnel on the directorate's payroll accounts have the appropriate base skills to perform their jobs; receive the training necessary to maintain those skills and health monitoring; and meet all training and personnel assurance requirements imposed by the institution, programs, and facilities. The Payroll AD also shall maintain training records of all personnel on the directorate's payroll accounts.

Associate Director for Plant Operations. The AD for Plant Operations reports administratively to the Laboratory Director and programmatically to the DDO. As the Laboratory's senior manager for ES&H technical support, the AD for Plant Operations is responsible for

- Providing and managing the necessary ES&H and QA expertise, guidance, and services to assist other ADs and their line organizations with implementation of the Laboratory's ES&H policies.
- Designating the ES&H Functional Manager to make sure the Laboratory is in compliance with DOE directives and Contract W-7405-ENG-48 (referred to as Contract 48), and to resolve ES&H-related performance issues.

- Developing and issuing the institutional ES&H Management Plan as well as other institutional ES&H planning and budget documents.
- Preparing annual budgets for overhead-funded institutional ES&H activities.
- Maintaining an awareness of current DOE orders, regulatory requirements, codes, and standards.
- Making sure that appropriate implementation guidance is issued.
- Managing or coordinating responses to Laboratory-wide ES&H and QA appraisals, assessments, audits, and inspections performed by the DOE, UC, and other agencies; and tracking corrective actions. In general the ARO is the Laboratory's central point of contact for appraisals conducted by UC and DOE.

Deputy Director for Operations. The DDO serves as the principal instrument of quality-based management at the Laboratory. The DDO is responsible for

- Assisting the Director by overseeing ES&H and Laboratory-wide business, administrative, and operational activities.
- Verifying the satisfactory achievement of performance measurement goals, as specified in Appendix F of Contract 48.
- Approving institutional ES&H policies.
- Requesting exemptions and variances from mandatory codes, standards, and DOE requirements.
- Independently overseeing institutional ES&H activities. (The Assurance Review Office assists the DDO with this function.)
- Assuring that ES&H concerns and priorities are communicated as a core value in interactions with DOE, Laboratory management, and individual employees.

The DDO has final authority on ES&H issues that cannot be resolved at the AD level.

1.3.4 Laboratory Director

The Laboratory Director is responsible for

- Making the environment, safety, and health a priority at the Laboratory.
- Making sure that implementation and the overall effectiveness of the Laboratory's ES&H Program comply with applicable ES&H laws and regulations and Contract 48 requirements.
- Fostering open communication on ES&H matters with the Laboratory's work force, the public, and external agencies.

The Director may delegate ES&H authority to executives, senior managers, and other LLNL employees.

1.3.5 Organizations with Specific ES&H Responsibilities

Senior Management Council. The Council comprises the Director (Chair), Deputy Directors, the Laboratory Executive Officer, all Associate Directors, and selected senior managers. The Council advises the Director on Laboratory policies, oversees the effectiveness of activities and programs for implementing these policies, and reviews incidents and audits for Lessons Learned.

ES&H Working Group. The ES&H Working Group (which reports to the DDO) comprises assurance managers from each directorate, the four heads of the ES&H and QA technical support organizations, and representatives from the Legal Office. The chairperson of the group is selected biannually by the DDO.

The ES&H Working Group approves ES&H implementation guidance developed by the ES&H technical support organizations. This guidance is signed by the DDO prior to publication in the ES&H manuals.

Assurance Review Office. The Assurance Review Office (ARO) provides an independent, internal ES&H appraisal program to assure that Laboratory ES&H policies and their implementation are consistent with Laboratory requirements, ES&H regulations, and DOE orders. ARO also provides ES&H institutional oversight for all LLNL nuclear and non-nuclear facilities. The ARO is the Laboratory's central point of contact for appraisals conducted by the UC and DOE.

Price-Anderson Amendments Act Project Office. The PAAA Project Office is the initial point of contact for the Laboratory with UC, other laboratories, DOE, and the Defense Nuclear Facilities Safety Board for all LLNL nuclear facility rulemaking activities. This office manages development of the PAAA Implementation Plans and is the Laboratory's PAAA coordinator for reporting noncompliance with any rules.

Occurrence Reporting Office. The Occurrence Reporting Office assigns occurrence report numbers, assists management in the categorization of occurrences and submittal of occurrence reports, and assists the Laboratory Emergency Duty Officer (LEDO) in making initial or follow-on verbal occurrence reports.

Chapter 4 of the *Health & Safety Manual* provides additional information on occurrence reporting.

Risk Management Office. The Risk Management Office is responsible for

- Managing the Laboratory's Self-Insurance Program, which includes the Workers' Compensation and general liability programs.
- Maintaining an awareness of current statutes, DOE orders, and other legal requirements to make sure the Laboratory complies with the State of California Workers' Compensation and other legal and financial mandates.

- Managing or coordinating the Laboratory's responses to any audits related to Workers' Compensation or insurance programs.
- Procuring special insurance to meet unique risks.
- Serving as a resource to Laboratory management on insurance matters and requirements.

1.3.6 ES&H Technical Support Organizations

Environmental Protection Department. The Environmental Protection Department (EPD) provides Laboratory organizations with expertise and guidance for executing the Laboratory's Environmental Protection Program. The purposes of the Program are to

- Make sure that all Laboratory operations comply with federal, state, and local environmental laws, regulations, and ordinances, and with applicable DOE directives.
- Clean up environmental contamination from past operations to acceptable standards.
- Minimize environmental impact from ongoing Laboratory operations to levels consistent with regulatory guidelines.
- Characterize and manage hazardous, mixed, and radioactive waste for the Laboratory.

In support of these goals, EPD is responsible for

- Providing environmental analysts as well as support to the ES&H teams.
- Responding to onsite emergencies with potential environmental impacts, and, in collaboration with emergency response personnel, guiding the cleanup, sampling, and reporting of these incidents.
- Monitoring the Laboratory site and adjacent environment for any impact operations may have on human health and the environment.
- Developing and providing Laboratory employees with required environmental training.
- Coordinating and monitoring LLNL's waste minimization effort.
- Appropriately handling hazardous, mixed, and radioactive waste for treatment, storage, shipping, or disposal.
- Producing the *Environmental Compliance Manual*, guidelines, and other supplemental information in accordance with environmental requirements.
- Maintaining knowledge of new environmental legislation, and informing Laboratory management if such legislation may impact operations.
- Interpreting regulatory requirements and developing implementation guidelines for use by Laboratory organizations.

- Determining compliance with environmental laws and regulations, and assessing the risk (if any) Laboratory operations may pose to the public and the environment.
- Developing or revising Laboratory environmental policies and implementation guidance; these are approved by the ES&H Working Group and signed by the DDO.
- Developing and issuing Laboratory environmental protection plans, reports (such as on chemical inventories using ChemTrack), permit applications, and documents required by the National Environmental Policy Act (NEPA).
- Representing the Laboratory in interactions with regulatory agencies and the public.

For additional information about EPD's operations, refer to the *Environmental Compliance Manual*.

Hazards Control Department. Hazards Control is responsible for assisting Laboratory programs with reducing the risk of workplace hazards by providing expertise, guidance, and services. The goals of risk reduction efforts are to prevent accidents, maintain a safe workplace, minimize exposure to harmful agents, and control the impact of emergency situations.

Hazards Control is also responsible for

- Providing the ES&H teams with leaders and a staff of specialists knowledgeable in all health and safety disciplines.
- Interpreting DOE directives as well as health and safety laws and regulations in collaboration with Health Services and with the assistance of Laboratory Counsel.
- Maintaining the Laboratory's repository of material safety data sheets (MSDSs).
- Documenting and maintaining a record of all occupational injuries and illnesses.
- Providing analytical laboratories for industrial hygiene and radiological dosimetry, including whole-body counting.
- Calibrating and maintaining industrial hygiene and radiological instruments.
- Providing education and training to meet institutional and regulatory requirements.
- Responding to emergencies through the Fire Department and ES&H teams.

- Producing the Laboratory's *Health & Safety Manual* and other publications designed to give consistent up-to-date guidance on health and safety issues. These documents are approved by the ES&H Working Group and signed by the DDO.

For additional information about Hazards Control's operations, refer to the *Health & Safety Manual*.

Health Services Department. The primary objectives of the Health Services Program (described in Chapter 5 of the *Health & Safety Manual*) are to promote health and a healthy work environment, prevent and detect diseases early, and treat injuries or illnesses occurring in the workplace.

In support of this program, Health Services is responsible for providing

- Health examinations for pre-placement, fitness for duty, return to work, and termination.
- Health assessments and programs to assist employees in staying healthy and productive.
- Disability management and vocational rehabilitation services for both occupational and non-occupational problems.
- Medical surveillance examinations when employees' job assignments involve physical, chemical, or biological health hazards, or when employees travel to certain foreign countries.
- Respirator medical review and approval.
- Health counseling for pregnant employees, or those planning or suspecting a pregnancy.
- Skin tests and counseling on the risk of exposure to "San Joaquin Valley Fever." (This requirement is applicable to employees who visit or are assigned to work at Site300.)
- Diagnosis, treatment, and follow-up of occupational injuries and illnesses.
- First aid and emergency care, including advanced cardiac life support, for all injuries or illnesses.
- A capability for the decontamination and treatment of chemical or radiological contamination.
- Support and consultation to Laboratory programs through the ES&H teams.
- A short-term, behavioral-counseling, crisis-intervention program (Employee Assistance Program), as well as organizational psychology services.

Quality Assurance Support Office. The Quality Assurance Support Office is responsible for

- Providing guidance and support to Laboratory programs and operations that demonstrate an item or process meets or exceeds the user's requirements and expectations.
- Preparing and maintaining the *LLNL Quality Assurance Program* (M-078). This document outlines the Laboratory's quality assurance policy and provides guidance for conducting QA evaluations.
- Providing guidance and support to Laboratory organizations so that they can meet quality assurance requirements.
- Developing and conducting training on the Quality Assurance Program.

ES&H Teams. The ES&H teams comprise ES&H specialists and technicians from the Environmental Protection, Hazards Control, and Health Services Departments. The teams integrate ES&H support for Laboratory programs and operations and are the key interface between line organizations and ES&H support organizations. Figure 1-2 shows the composition of and program areas serviced by each team.

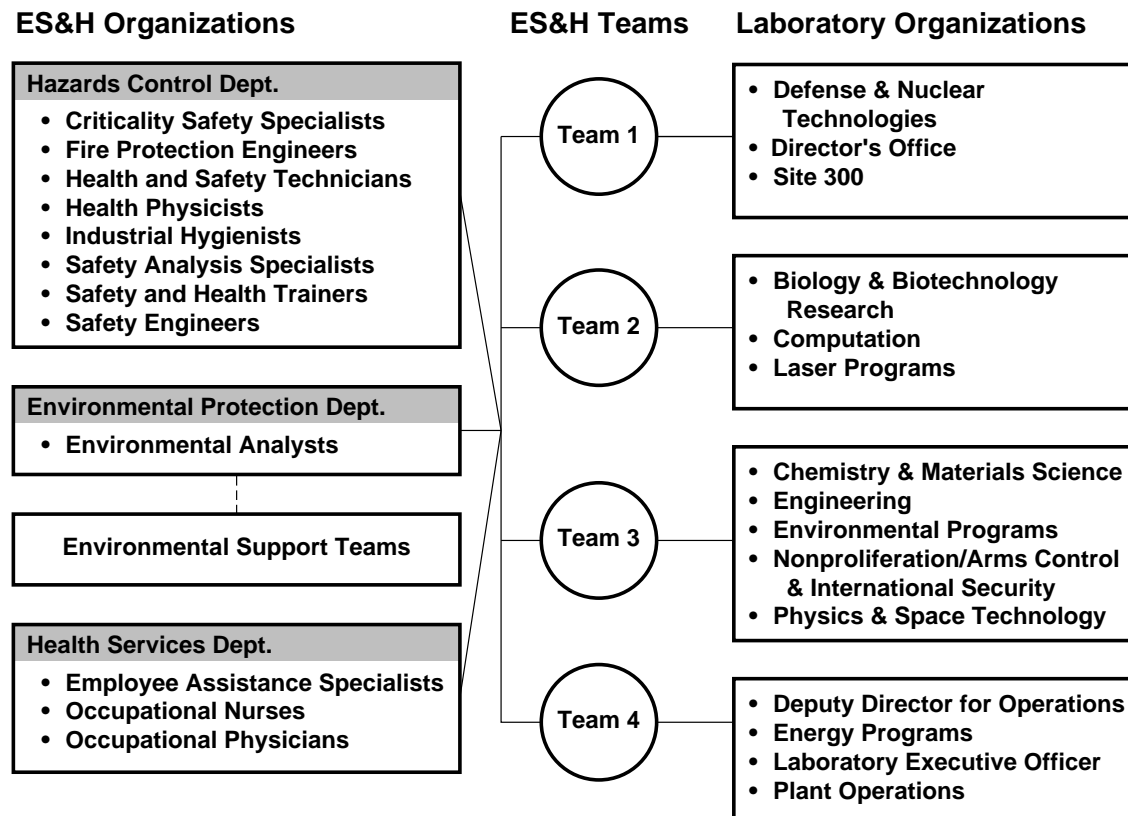


Figure 1-2. Support structure of the ES&H organizations, ES&H teams, and Laboratory organizations.

The ES&H teams are also responsible for

- Providing technical support and consultation to LLNL programs and staff.
- Critically and independently performing ES&H surveillance of planned and ongoing operations, facilities, equipment, and procedures; and recommending corrective actions to the cognizant management. In critical situations, the teams will request that management suspend operations until the problems are resolved.
- Bringing to the attention of the AD for Plant Operations (through their management) any concerns that have not been satisfactorily resolved by line management.
- Providing ES&H support during emergencies.
- Assisting line organizations in identifying and analyzing health and safety hazards and environmental compliance in their operations.
- Advising line organizations of appropriate controls to eliminate or minimize identified hazards and concerns and of applicable ES&H codes, standards, regulations, and DOE orders in a manner consistent with Laboratory policy.
- Assisting line organizations in meeting mandatory requirements.
- Monitoring the work environment to ensure compliance with the requirements in the *Health & Safety Manual*, *LLNL Radiological Control Manual*, *Environmental Compliance Manual*, and environmental guidelines; and applicable safety procedures, codes, standards, regulations, and DOE orders. (The teams will advise management on noncompliances.)
- Taking appropriate steps to ensure that any activity that presents an imminent, uncontrolled high-risk threat to human health, safety, or the environment is immediately stopped.
- Providing guidance to line management in the development and review of safety-related procedures and documents (e.g., safety procedures, Radiological Work Permits, design reviews, incident analysis reports).
- Conducting independent accident and incident evaluations and assisting management in formal incident analyses.

Environmental Support Teams (ESTs). There are four ESTs within EPD that assist LLNL programs with environmental issues through the appropriate ES&H team. Each EST consists of individuals specializing in specific environmental disciplines such as NEPA, permits, or waste management. Support is available either directly from the EST discipline or through the ES&H team environmental analysts. Environmental analysts serve as liaisons between the ESTs and ES&H teams.

1.4 Non-LLNL Personnel

1.4.1 Work Requirements

Non-LLNL personnel are visitors, students, participating guests, contract labor, supplemental labor, and vendors, including those working for facility operations contractors. These individuals shall

- Receive appropriate LLNL ES&H training, or equivalent, or shall be escorted and supervised by personnel knowledgeable in the hazards to which they may be exposed.
- Receive the same pre-placement and ongoing medical surveillance examinations as LLNL employees based on occupational exposure(s).
- Report all supplemental-labor-only (SLO) work-related injuries and illnesses to Hazards Control.
- Use the same protective equipment and safety controls required for any employee working in the area.
- Follow LLNL requirements governing the safe and orderly conduct of operations.
- Not be assigned tasks or duties that expose them to hazards beyond that specified in their contract.

With the exception of emergency first aid and respirator review and approval, Health Services does not routinely provide medical services to non-LLNL personnel. Special examinations may be provided only if requested by LLNL management or is specified in contractual agreement. See Chapter 5 of this Manual for further details.

1.4.2 Supplemental Labor Employees

The Supplemental Labor Policy states that specific subcontract provisions must be in place to allow work involving a likelihood of exposure to substances not generally encountered in similar work in the relevant job category in U.S. industry. The policy also states that supplemental labor employees must have a physical examination within the first 30 days of work. Programs must provide a description of job duties to the vendor to serve as a basis for the examiner's review and recommendations. The vendor must provide the Supplemental Labor Office evidence of the exam.

Further details on this policy can be found in the LLNL *Supplemental Labor Policy & Procedures Manual*.

1.4.3 Contractors

Contractors who provide support to the Laboratory or are responsible for facility operations are not relieved of any legal obligations with regard to ES&H. Contractors may augment the Laboratory's ES&H policies with those of their company, but must follow the Laboratory's policies as a minimum.

1.5 Construction Subcontractors

All construction subcontracts shall contain the requirements and guidance necessary to extend the Laboratory's ES&H policy to subcontractors who perform work in Laboratory-controlled areas. Before any contract or purchase order can be issued for work at the LLNL-Livermore site or Site 300, either Plant Engineering or Procurement must

- Have Hazards Control evaluate the potential for injury or damage that may result from the operation.
- Inform the subcontractor, through the appropriate Laboratory contract administrator, of any unique hazards of the work environment and any special protective measures specified by LLNL that is required for work.
- Include in the contract or purchase order a reference to the UC-LLNL prescribed safety standards and applicable requirements from this Manual.

All formal interactions between LLNL and the subcontractor must be conducted through the contract administrator, who is usually a member of Plant Engineering or Procurement. Direct contact by LLNL personnel may only be made to stop a high-risk operation.

The Laboratory cooperates with subcontractors by restricting potentially hazardous operations near the subcontractor's work area and by providing fire-fighting and emergency ambulance services.

Additional requirements for construction subcontractors performing work at the Laboratory can be found in Supplement 1.11 of this Manual.

1.6 Restrictions for Underage Employees

Federal and state regulations and LLNL policy may restrict the work activities of minors. Following is a summary of the work requirements for underage employees:

- Workers under the age of 18 shall not operate government vehicles or perform work involving human chemical carcinogens, mutagens, teratogens, or reproductive hazards. The radiation exposure limits permitted for non-LLNL personnel under 18 years of age are specified in Supplement 33.02 of this Manual.
- According to California regulation,
 - Workers under the age of 18 shall not operate a forklift, crane, derrick, power hoist, or vehicle exceeding 6000-lb gross vehicle weight; do any work involving explosives, wrecking or demolition, or rigging; or be a rigger's helper.

These individuals are also restricted from working with hazardous equipment, in an occupation declared particularly hazardous, or on any building or construction work unless they are in an approved apprenticeship training program or a work experience program. Hazardous operations include roofing, excavation, or operation of power-driven woodworking machines, saws, or nailers.

- Workers under the age of 16 may not use hazardous chemicals unless they are in an approved apprenticeship training program or a work experience program.

1.7 Performance Responsibilities to External Organizations

1.7.1 Contractual ES&H Requirements

The University of California operates the Laboratory under Contract 48 for the Department of Energy (DOE). DOE is the primary sponsor of all work performed at LLNL. Contract 48 establishes the compliance requirements and legal parameters under which the Laboratory must operate and is held accountable. Sections of this contract with ES&H content are

- Article XIV, which covers compliance requirements for the environment, safety, and health.
- Appendix F, which includes objective performance measurement goals that are established annually by UC and DOE (with input from the Laboratory).
- Appendix G, which lists DOE directives that have been accepted by UC for the purpose of imposing standing operational requirements and obligations on the University and thus on the Laboratory.

1.7.2 Oversight by External Organizations

As part of its oversight role, staff of UC, DOE, and other regulatory agencies conduct periodic reviews of how the Laboratory implements DOE orders, federal laws, and regulations; and uses standards. These reviews include briefings by Laboratory personnel; examination of relevant policies, implementation guidance, and records; and facility inspections.

University of California. UC monitors the Laboratory's progress in meeting ES&H-related performance measurement goals and oversees the Laboratory's self-assessment. The Laboratory is required to conduct an annual self-assessment to evaluate its management performance with respect to having met the measurement goals.

Department of Energy. The DOE Office of Environmental, Safety, and Health (EH) provides independent oversight of the Laboratory's ES&H operations to ensure conformance with applicable laws and requirements governing the

environment and the health and safety of the public and workers at DOE facilities.

Other Agencies. Many LLNL activities, primarily in the environmental area (e.g., waste operations, air, and sewer discharges), are governed by regulations established by agencies at the federal, state and local level. These agencies frequently perform compliance inspections and audits.

Further details on environmental agencies can be found in the *Environmental Compliance Manual*.

1.8 Integrated Safety Management

The Laboratory has always integrated ES&H principles into its operations (see Chapter 2). Table 1-1 shows how the LLNL ES&H management system incorporates the objective, principles, and functions of the recent DOE Integrated Safety Management System (ISMS) and lists where these elements can be found in the *Health & Safety Manual*. The other components of ISMS, mechanisms, responsibilities, and implementation are based on the specific nature and hazard of the work being performed. These are documented in safety procedures, hazards analyses, sections of the ES&H manuals, and other administrative reports.

1.9 Stopping High-Risk Operations and Responding to Imminently Dangerous Situations

Operations (or situations) perceived to present a high risk to the health and safety of employees, the public, and the environment can be stopped immediately by any Laboratory employee (not only members of ES&H organizations), supplemental labor employee, or contractor providing support or operating an LLNL facility.

Imminently dangerous situations (i.e., where an immediate likelihood of death or serious harm to personnel is reasonably expected) must be mitigated immediately. As a minimum, mitigation shall include providing a barrier (e.g., cordons, personnel watch) to reduce the possibility of personnel exposure.

The person requesting the work stoppage or taking mitigating action for an imminently dangerous situation will inform the manager responsible for the operation, the area ES&H team, and Directorate Assurance Manager as soon as possible.

An incident analysis must be conducted and prepared for situations determined by Hazards Control to be high risk. Information on incident reporting can be found in Chapter 4 of this Manual.

Table 1-1. *Health & Safety Manual* Guide for the Integrated Safety Management System.

Integrated Safety Management System Component	In LLNL <i>Health & Safety Manual</i>
Objective. "The DOE and its contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment."	Chapter 2, "Integrating ES&H into Laboratory Activities"; and Chapter 1, Section 1.2, "Laboratory Environmental, Safety, and Health Policy"
Guiding Principles	
Line management responsibility for safety	Chapter 1, Section 1.3, "ES&H Responsibilities"
Clear roles and responsibilities	Chapter 1, Section 1.3, "ES&H Responsibilities"
Competence commensurate with responsibilities	Chapter 1, Section 1.3, "ES&H Responsibilities"
Balanced priorities	Chapter 1, Section 1.2, "Laboratory Environmental, Safety, and Health Policy"
Identification of safety standards and requirements	Chapter 1, Section 1.7, "Performance Responsibilities to External Organizations"; and Chapter 2, Section 2.2, "Planning the Activity"
Hazard controls tailored to work being performed	Chapter 2, Section 2.2.2, "Determining the ES&H Controls"
Operations authorization	LLNL's authorization process is described in Chapter 2 and Contract 48.
Chapter 2, "Integrating ES&H into Laboratory Activities," describes the LLNL process for the functions listed below. Figure 2-1 illustrates the work process.	
Functions	
Define scope of work	Chapter 2, Section 2.2, "Planning the Activity"
Identify and analyze hazards associated with the work	Chapter 2, Section 2.2.1, "Conducting the ES&H Evaluation"
Develop and implement hazard controls	Chapter 2, Section 2.2.2, "Determining the ES&H Controls"; and Section 2.2.3, "Determining the ES&H Document Requirements."
Perform work within controls	Chapter 2, Section 2.3, "Performing the Activity"
Provide feedback on adequacy of controls and continuous improvements in defining and planning work	Chapter 2, Section 2.3.2, "Monitoring the Activity"